

## WELD COUNTY EMERGENCY FLOOD REPAIR

### THE PROBLEM

In September of 2013, 17 counties in Colorado suffered a 500-year catastrophic flood event. Hundreds of bridges and roads were destroyed with damage so extensive that it left several counties deemed major disaster areas. Emergency funding aided in the rebuilding of roadways and bridges while the Governor of Colorado worked to establish a one year reclamation plan. Weld County, being one of the counties that was heavily affected by the resulting erosion damage, needed to take action immediately to begin reestablishing vegetation and stabilizing the soil in the damaged areas. All Cowboy Erosion Control along with Triton Environmental and Propex Global Solutions worked together on the ideal re-vegetation and soil stabilization system needed to recover from such extensive damages and rebuild the County to withstand any future flood events to come.

### THE CHALLENGE

FEMA (Federal Emergency Management Agency) stressed the importance of the main goal of these repair projects. It was not just to vegetate and rebuild the disaster zones but to redesign the roads and bridges in order to withhold any other future catastrophic flood event that may come. This posed a challenge for several reasons. As a result of the over flow of rivers in the area, severe floods and erosion left many of these disaster zones with nothing but sandy, unstable soils. Almost all of the top soil on sight had been washed away and, due to the lack of organic composition that made up the existing topsoil, vegetation was not establishing naturally. Our first challenge was to amend the topsoil with the nutrients and organic matter required to make it sustainable for reestablishing vegetation. Our second challenge was to overcome the erodible tendencies of these soft soils and steep slopes by developing a system that would prevent any future erosion and immediately stabilize the seed and soil on these steep slopes and channels.



*September 2013*



*March 2014- area repaired, and blanket set to protect from erosion*

## THE SOLUTION: THE PERSEPHONE SYSTEM

Choosing the right amendment was critical to the long term success of Weld County's flood repair projects. Weld County chose a Hydraulic Growth Medium called Biotic Earth, a hydraulically applied topsoil replacement system, in order to reach the necessary amount of organic matter needed to establish vegetation. Typical practice would have been to import topsoil to the job sites, however, the cost of importing this amount of topsoil was not a practical or cost effective solution. Biotic Earth was used as a replacement to topsoil to enhance the growth of natural vegetation. Vegetation was established by applying the Biotic Earth growth medium at a rate of 3,500 pounds per acre. Based on the nutrient results of the soil samples collected from the areas, this specific rate was necessary to achieve a level of organic matter and macronutrients ideal for creating a nutrient-rich growing environment.

In order to establish immediate soil stabilization, Propex Global Solutions' high-performing Turf Reinforcement Mating (Landloc 300) was used in its Armor Max system to prevent any further erosion of the newly established topsoil complex. Due to the highly erodible properties of the soil, 18" anchor pins were used to reinforce the system's foundation and enhanced the seed to soil contact. The finishing elements of the system included a second layer of the seed, organic fertilizer and Biotic Earth matrix, which included Earth Bound 2000 soil flocculent, secured in place with a 100% biodegradable netted straw blanket.

## THE RESULTS

Vegetation began establishing less than 2 weeks after the system was applied. From May 2014 to August 2014 the vegetation began to stabilize the slope. Given the past success of The Persephone System in its ability to drastically decrease the germination rate of the seed, Triton was confident that the implementation of this system would lead to the success that was strived for during the flood repairs. Even with the severity of these sights' erosion damage, the high vegetation growth rate can be credited to the addition of Verdyol's Biotic Earth HGM matrix that created the ideal nutrient rich system for maximum plant growth. However, establishing vegetation would not have been possible without the high performance levels of the Propex Armor Max system to prevent erosion, coupled with Triton's soil amending system to create the ideal environment for maximum plant growth. Each necessary component of The Persephone System worked cohesively and successfully towards the challenge of re-vegetating these severally damaged areas.



*June 13, 2014- Weld County Road*

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